

## ABSTRACT

[0073] A catalyst system for (co)-polymerizing ethylene or ethylene with  $\alpha$ -olefin is disclosed. The catalyst system utilizes a catalyst component that contains the product of a reaction of an early transition metal complex such as a titanium alkoxide with a cyclic diene-containing compound such as indene. The catalyst system also utilizes a solid magnesium halide support and an alkylaluminum co-catalyst. The catalyst system of present invention produces polyethylene with a narrow molecular weight distribution and a narrow compositional distribution.